Title

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reldif( ) — Relative/absolute difference

Syntax Description Conformability Diagnostics Also see

Syntax

real matrix `reldif(`*numeric matrix X*`,` *numeric matrix Y*`)`

real scalar `mreldif(`*numeric matrix X*`,` *numeric matrix Y*`)`

real scalar `mreldifsym(`*numeric matrix X*`)`

real scalar `mreldifre(`*numeric matrix X*`)`

Description

`reldif(`X`,` Y`)` returns the relative difference defined by

$$r = \frac{|X - Y|}{|Y| + 1}$$

calculated element by element.

`mreldif(`X`,` Y`)` returns the maximum relative difference and is equivalent to `max(reldif(`X`,` Y`))`.

`mreldifsym(`X`)` is equivalent to `mreldif(`X'`,` X`)` and so is a measure of how far the matrix is from being symmetric (Hermitian).

`mreldifre(`X`)` is equivalent to `mreldif(Re(`X`),` X`)` and so is a measure of how far the matrix is from being real.

Conformability

`reldif(`X`,` Y`)`:

X:	$r \times c$
Y:	$r \times c$
result:	$r \times c$

`mreldif(`X`,` Y`)`:

X:	$r \times c$
Y:	$r \times c$
result:	1×1

`mreldifsym(`X`)`:

X:	$n \times n$
result:	1×1

`mreldifre(`*X*`)`:

X:	$r \times c$
result:	1×1

Diagnostics

The relative difference function treats equal missing values as having a difference of 0 and different missing values as having a difference of missing (`.`):

```
reldif(., .) == reldif(.a, .a) == ··· == reldif(.z, .z) == 0
```

```
reldif(., .a) == reldif(., .z) == ··· == reldif(.y, .z) == .
```

Also see

[M-4] **utility** — Matrix utility functions